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Curricula analysis

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Executive summary

This white paper presents the findings of Task 4.1 (Curricula Analysis and Benchmarking) of Work Package 4 within the DETECT 2.0 Erasmus+ project (Deep Tech Competence Enhancement for Digital Transition in Dementia Care). The study was conducted to benchmark the current state of artificial intelligence (AI) skills and MCI development in healthcare and ICT education across Higher Education Institutions (HEI) and Vocational Education and Training (VET) programmes in four European countries: Finland, Spain, the Netherlands, and Portugal.

A structured survey comprising 38 questions was administered to educators and programme coordinators from nine consortium partner institutions. A total of 34 valid responses were collected, representing programmes at EQF levels 4 through 7, spanning both healthcare and ICT fields. The survey instrument assessed current AI integration levels, dementia-specific content coverage, pedagogical approaches, teacher confidence and competence, innovation and entrepreneurship orientation, sustainability awareness, and digital competence frameworks in use.

The key findings reveal significant gaps across the European educational landscape:

- **AI Integration:** 82% of surveyed programmes lack meaningful AI integration, with the majority reporting either no AI content or only basic/awareness-level coverage.
- **Dementia Focus:** 70.6% of programmes have no dementia-specific focus, indicating a critical gap given Europe's ageing population and the growing importance of technology-enabled dementia care.
- **Teacher Confidence:** 64.7% of educators report low confidence in teaching AI-related topics, highlighting a substantial need for faculty upskilling and professional development.
- **Innovation Capacity:** 82.4% of programmes do not include novel development projects involving students, limiting practical, hands-on learning experiences.
- **Sustainability:** The mean sustainability awareness score is only 2.2 out of 5.0, suggesting that ethical AI, green computing, and responsible technology use remain underrepresented.

Cross-segment analysis reveals that HEI programmes tend to have slightly more advanced AI coverage than VET programmes, but both remain at early stages. ICT programmes predictably score higher on technical AI competencies, while healthcare programmes lag significantly, despite being the primary beneficiaries of AI-driven innovations in dementia care. Finnish institutions (Tredu, Curio, LAB) constitute the majority of respondents, with UPV providing the Spanish perspective.

These findings provide a robust evidence base for the subsequent tasks within WP4, particularly T4.2 (Gap Analysis), T4.3 (Insights for Curricula Development), and T4.4 (Educational Material Development). The recommendations call for systematic AI

curriculum integration, dementia-specific module development, structured teacher training programmes, competence-based assessment frameworks, and cross-border collaborative learning models.

1. Introduction and Background

1.1 The DETECT 2.0 Project

DETECT 2.0 (Deep Tech Competence Enhancement for Digital Transition in Dementia Care) is an Erasmus+ Alliances for Innovation project that brings together nine partner organisations from four European countries (Finland, Spain, the Netherlands, and Portugal). The project aims to enhance deep tech competencies in healthcare education, with a particular focus on artificial intelligence applications in dementia care. By bridging the gap between technological innovation and healthcare education, DETECT 2.0 seeks to prepare current and future healthcare professionals and ICT specialists for the demands of a digitally transformed care ecosystem.

The consortium comprises higher education institutions (HEIs), vocational education and training (VET) providers, and industry partners, creating a multi-sectoral collaborative environment.

1.2 Work Package 4: Modernising Education and Training

Work Package 4 (WP4) is entitled "Modernizing and developing education and training related to AI skills in healthcare." Led by UPV, WP4 spans from Month 3 to Month 32 of the project and is structured around four core tasks:

- **Task 4.1:** Benchmarking AI-skills development in HEI and VET healthcare education in Europe (the focus of this deliverable).
- **Task 4.2:** Gap analysis of AI skills in healthcare curricula.
- **Task 4.3:** Insights for curricula development and modernisation.
- **Task 4.4:** Development of educational materials and learning resources.

This deliverable (D4.1) is the white paper resulting from Task 4.1, providing a comprehensive benchmarking analysis of the current state of AI skills education in healthcare programmes across the consortium.

1.3 Purpose and Scope of This Deliverable

The purpose of D4.1 is to establish an evidence-based baseline of how AI skills are currently taught (or not taught) within healthcare and ICT education programmes across the DETECT 2.0 partner institutions. This benchmarking exercise employed a structured Windows Forms survey administered to educators and programme coordinators, capturing both quantitative metrics and qualitative insights.

The scope of this analysis covers: current levels of AI integration in curricula; dementia-specific content and technology focus; pedagogical approaches and assessment methods for AI education; teacher confidence and competence in AI topics; innovation, entrepreneurship, and sustainability orientation; digital competence frameworks in use;

and cross-segment comparisons between VET vs. HEI and Healthcare vs. ICT programmes.

2. Methodology

2.1 Survey Design

The data collection instrument was a structured questionnaire comprising 38 questions, designed to capture a comprehensive picture of AI education in healthcare and ICT programmes. The survey was developed collaboratively among WP4 partners and administered via Windows Forms to ensure accessibility and standardised data collection.

The questionnaire was organised into the following thematic sections:

- **Respondent Profile (Q1–Q8):** Name, email, institution, programme name, field of education (Healthcare/ICT), programme type (VET/HEI), EQF level, and programme duration.
- **AI Integration Assessment (Q9–Q14):** Current level of AI content coverage, specific AI topics taught, AI technologies addressed (machine learning, NLP, computer vision, robotics, etc.), and approaches to integrating AI into the curriculum.
- **Dementia Focus (Q15–Q18):** Presence of dementia-specific content, use of technology in dementia care education, awareness of AI applications for dementia diagnosis and care.
- **Teaching Confidence and Competence (Q19–Q24):** Self-assessed confidence in teaching AI topics (Likert scale), professional development needs, barriers to AI education, and available teaching resources.
- **Innovation and Entrepreneurship (Q25–Q30):** Novel development projects, student involvement in innovation, entrepreneurial mindset cultivation, start-up and commercialisation exposure.
- **Sustainability and Ethics (Q31–Q34):** Sustainability awareness, green computing, ethical AI considerations, responsible technology use.
- **Digital Competence and Future Needs (Q35–Q38):** Digital competence frameworks in use (DigComp, DigCompEdu), emerging topics requested, collaboration models, and open-ended feedback.

2.2 Sample Characteristics

A total of 34 valid responses were collected from educators and programme coordinators across the consortium partner institutions. The sample distribution is as follows:

Institution	Country	Responses	Percentage
Tredu	Finland	13	38.2%
Curio	Finland	10	29.4%
LAB University of Applied Sciences	Finland	7	20.6%

Universitat Politècnica de València (UPV)	Spain	4	11.8%

The respondent distribution by programme type and field of education is summarised below:

Segment	Count	Percentage
VET programmes	24	70.6%
HEI programmes	10	29.4%
Healthcare field	22	64.7%
ICT field	12	35.3%

Programmes represented range from EQF level 4 (upper secondary VET) to EQF level 7 (Master's level), providing a comprehensive cross-section of healthcare and ICT education. The geographic concentration in Finland reflects the composition of the consortium's educational partners, with Tredu and Curio representing the VET sector and LAB representing the HEI sector, while UPV provides the Southern European perspective.

2.3 Analysis Approach

The analysis employed a mixed-methods approach combining quantitative statistical analysis with qualitative thematic coding:

- **Quantitative analysis:** Descriptive statistics (frequencies, percentages, means), cross-tabulations by programme type (VET/HEI) and field (Healthcare/ICT), and four-way segmentation analysis (VET-Healthcare, VET-ICT, HEI-Healthcare, HEI-ICT).
- **Qualitative analysis:** Thematic coding of open-ended responses to identify recurring themes, challenges, and opportunities related to AI education in healthcare contexts.

All quantitative data was processed from the raw Windows Forms responses (34 respondents × 38 questions), and cross-validated against the aggregated survey analysis.

3. Quantitative Findings

3.1 AI Coverage in Current Curricula

The survey reveals that the vast majority of European healthcare and ICT education programmes **have not yet meaningfully integrated artificial intelligence into their curricula**. When asked about the current level of AI content in their programmes, respondents provided the following distribution:

AI Integration Level	Count	Percentage
No AI content	14	41.2%
Basic/Awareness level only	14	41.2%
Intermediate (dedicated modules)	4	11.8%
Advanced (integrated throughout)	2	5.9%

These figures demonstrate that **82.4% of programmes either have no AI content whatsoever or offer only basic awareness-level coverage**. Only 5.9% of programmes report advanced, integrated AI coverage throughout their curriculum. This represents a significant gap given the increasing importance of AI in healthcare delivery, diagnostics, and patient care management.

Among the programmes that do include some AI content, the most commonly covered topics are basic AI concepts and terminology, introduction to machine learning principles, and data literacy. More specialised topics such as natural language processing, computer vision for medical imaging, robotic process automation, and AI ethics are covered by fewer than 15% of programmes.

3.2 Dementia-Specific Focus

Given that DETECT 2.0 specifically targets the intersection of AI and dementia care, the survey assessed whether programmes include dementia-specific content and technology applications:

Dementia Focus	Count	Percentage
No dementia-specific content	24	70.6%
Some dementia awareness	7	20.6%
Dedicated dementia module(s)	2	5.9%
Comprehensive dementia focus	1	2.9%

The data shows that **70.6% of programmes have no dementia-specific content at all**. This finding is particularly concerning for healthcare programmes, where understanding dementia and its technological support systems should be increasingly relevant. **Only 8.8% of programmes have dedicated or comprehensive dementia coverage, highlighting a critical gap that the DETECT 2.0 project is positioned to address.**

Even among healthcare programmes specifically, the penetration of **dementia-specific AI applications** (such as AI-assisted cognitive screening, smart home monitoring, predictive analytics for disease progression, and natural language processing for patient interaction) **is minimal**. This underscores the need for purpose-built educational modules that bridge AI technologies and dementia care.

3.3 AI Technologies Addressed

Respondents were asked about which specific AI technologies are currently addressed in their programmes. The results show **a narrow focus on foundational concepts**:

- **Machine Learning fundamentals:** covered by approximately 23.5% of programmes, primarily at the awareness level.
- **Data Analytics and Big Data:** covered by approximately 20.6%, mostly in ICT programmes.
- **Natural Language Processing (NLP):** covered by only 11.8%, despite its relevance to patient communication and documentation.
- **Computer Vision:** covered by 8.8%, with very limited connection to medical imaging applications.
- **Robotics and Automation:** covered by 14.7%, mostly in VET technical programmes.
- **Expert Systems / Decision Support:** covered by less than 6% of programmes.

Emerging technologies with direct relevance to dementia care, such as sensor-based monitoring systems, speech pattern analysis for early detection, and AI-powered assistive devices, **are virtually absent from current curricula**.

3.4 Teacher Confidence in AI Education

One of the most critical barriers identified in this benchmarking exercise is the **low confidence of educators in teaching AI-related topics**. On a self-assessed confidence scale (1 = not confident at all, 5 = very confident), the results are as follows:

Confidence Level	Description	Count	Percentage
1–2	Low confidence	22	64.7%
3	Moderate confidence	8	23.5%
4–5	High confidence	4	11.8%

The mean confidence score across all respondents is 2.1 out of 5.0, indicating a widespread lack of preparedness among educators. This finding is **consistent across both VET and HEI sectors**, though **slightly higher in ICT programmes** (mean **2.6**) compared to **healthcare programmes** (mean **1.8**). Educators cited the following primary **barriers** to building AI teaching competence: **lack of professional development opportunities (76.5%), absence of suitable teaching materials (67.6%), rapid pace of technological change making it difficult to stay current (58.8%), and insufficient institutional support and time allocation (47.1%)**.

3.5 Innovation and Entrepreneurship Skills

The survey assessed the extent to **which programmes cultivate innovation capacity and entrepreneurial mindsets among students**, recognising that AI in healthcare requires not just technical knowledge but also the ability to identify opportunities, develop solutions, and translate innovations into practice.

Key findings on innovation skills include:

- **Novel development projects: 82.4% of programmes do not include** any novel development projects where students **create or prototype new solutions**. Only 17.6% offer project-based learning involving innovation.
- **Entrepreneurial exposure: 73.5% of programmes provide no exposure to start-up thinking**, commercialisation pathways, or entrepreneurial processes.
- **Industry collaboration: 61.8% report limited or no collaboration with industry partners** for student projects or internships focused on innovation.
- **Interdisciplinary projects: Only 14.7% of programmes include interdisciplinary projects combining healthcare and ICT students**, despite the clear benefits of such collaboration for AI in healthcare innovation.

3.6 Sustainability and Ethical AI Awareness

Sustainability and **ethical** considerations in AI are increasingly important topics in European education policy.

The survey assessed awareness and integration of these themes:

- The **mean sustainability awareness score** (encompassing green computing, energy-efficient AI, sustainable technology practices) is **2.2 out of 5.0** across all respondents, indicating **low integration of sustainability concerns into AI education**.

Regarding ethical AI considerations:

- **Only 26.5% of programmes address AI ethics** (bias, fairness, transparency, accountability) in any meaningful way.

- Data privacy and GDPR considerations are covered by 35.3% of programmes, primarily in the context of general data handling rather than AI-specific scenarios.
- **Responsible AI development principles are included in only 11.8% of curricula**.
- **The societal impact of AI automation on healthcare employment is discussed in fewer than 9% of programmes**.

3.7 Digital Competence Frameworks

The survey examined which digital competence frameworks are currently used to guide curriculum design and student assessment:

- **DigComp (European Digital Competence Framework for Citizens):** referenced by 29.4% of programmes.
- **DigCompEdu (European Digital Competence Framework for Educators):** used by 23.5% of programmes for teacher development.
- **National or institutional frameworks:** used by 41.2% of programmes, often alongside or instead of European frameworks.
- **No formal framework:** 17.6% of programmes do not use any formal digital competence framework.

The adoption of AI-specific competence frameworks is minimal, with no programme reporting the use of a dedicated AI competence framework for healthcare education.

4. Cross-Segment Analysis

4.1 VET versus HEI Comparison

The comparison between Vocational Education and Training (VET, n=24) and Higher Education Institution (HEI, n=10) programmes reveals meaningful differences in AI education readiness:

Indicator	VET (n=24)	HEI (n=10)
AI content present	12.5%	30.0%
Dementia focus present	25.0%	40.0%
Mean teacher confidence (1–5)	1.9	2.5
Innovation projects present	8.3%	40.0%
Sustainability score (1–5)	2.0	2.6
Uses digital competence framework	75.0%	90.0%

HEI programmes consistently score higher across all indicators, which is expected given their typically longer duration, more research-oriented approach, and greater institutional resources. However, **neither sector reaches satisfactory levels of AI integration**. VET programmes face particular challenges related to shorter programme durations, more prescriptive curricula, and fewer opportunities for elective content. **The confidence gap between VET and HEI educators is notable and suggests that professional development efforts should be differentiated by sector**.

4.2 Healthcare versus ICT Comparison

The comparison by field of education reveals a predictable but concerning pattern:

Indicator	Healthcare (n=22)	ICT (n=12)
AI content present	9.1%	33.3%
Dementia focus present	36.4%	8.3%
Mean teacher confidence (1–5)	1.8	2.6
Innovation projects present	9.1%	33.3%
Sustainability score (1–5)	2.1	2.4

ICT programmes have roughly three times the rate of AI content compared to healthcare programmes, which is expected given the technical nature of ICT curricula. However, healthcare programmes have significantly more dementia-specific content (36.4% vs

8.3%), reflecting their clinical focus. **The most critical gap is that healthcare programmes, which need AI skills to improve patient care and leverage emerging technologies, have the lowest AI integration rates and the lowest teacher confidence in AI topics**.

This finding directly supports the rationale of the DETECT 2.0 project: healthcare educators need targeted support to integrate AI competencies into their programmes, and this integration must be done in a way that is contextualised to healthcare applications, particularly dementia care.

4.3 Four-Way Segmentation Analysis

A more granular analysis dividing respondents into four segments (VET-Healthcare, VET-ICT, HEI-Healthcare, HEI-ICT) provides the most nuanced picture:

Segment	n	AI Content	Dementia Focus	Teacher Confidence	Innovation
VET-Healthcare	15	**6.7%**	33.3%	**1.7**	6.7%
VET-ICT	9	22.2%	11.1%	2.2	11.1%
HEI-Healthcare	7	14.3%	42.9%	2.1	28.6%
HEI-ICT	3	**66.7%**	0.0%	**3.3**	66.7%

The VET-Healthcare segment represents the largest group (n=15, 44.1%) and also the most underserved in terms of AI education, with only 6.7% reporting any AI content and teacher confidence at just 1.7 out of 5. **This segment should be a primary target for the educational materials and curricula enhancements developed in subsequent WP4 tasks**.

The HEI-ICT segment, while small (n=3), shows the most advanced state of AI integration (66.7%) and highest teacher confidence (3.3), but notably has zero dementia focus, indicating that **even technically advanced programmes lack the healthcare contextualisation needed for the DETECT 2.0 objectives**.

5. Qualitative Analysis

The **open-ended survey responses** provide rich contextual information that complements the quantitative findings. Thematic analysis of the qualitative data reveals several key themes and representative insights from educators across the consortium.

5.1 Innovation and Learning Task Design

Respondents described a variety of approaches to innovation and learning tasks, **ranging from traditional lecture-based instruction to more progressive project-based models**. **Several educators highlighted the desire to include more practical, hands-on AI experiences** but cited resource constraints as the primary barrier.

Representative responses include observations that **students benefit most from experiential learning with real or simulated AI systems, but that access to appropriate tools, datasets, and computing infrastructure is limited**. Multiple respondents noted that **collaboration with industry partners could help bridge this gap but that institutional processes for establishing such partnerships are often slow or burdensome**.

5.2 Entrepreneurship and Innovation Mindset

The qualitative data reveals that **entrepreneurial thinking is largely absent from healthcare education programmes**, with educators noting that the clinical focus of their curricula leaves little room for innovation-oriented content. **ICT programmes fare somewhat better**, with some respondents describing hackathons, design thinking workshops, and start-up incubator participation.

Healthcare educators expressed interest in incorporating more innovation-focused activities but noted that this requires a fundamental shift in how healthcare curricula are structured, moving from purely knowledge-transfer models to competence-based approaches that include creativity, problem-solving, and solution design.

5.3 Sustainability and Ethics Perspectives

While sustainability awareness scores are low overall, the qualitative responses indicate growing recognition of the importance of ethical AI and sustainability considerations. Several respondents **mentioned that GDPR compliance** and patient data ethics are discussed in their programmes, but acknowledged that **broader AI ethics topics (algorithmic bias, fairness, transparency, accountability) are not yet systematically addressed**.

Educators also **noted the tension between the push for AI adoption and the need for critical reflection on AI's societal impact, particularly in healthcare contexts where decisions can directly affect patient outcomes and well-being**.

5.4 Digital and AI Readiness Gaps

The qualitative analysis highlights several critical readiness gaps that extend beyond curriculum content to institutional and systemic factors:

- **Infrastructure:** Many institutions **lack the computational infrastructure** (GPU servers, cloud computing credits, AI development platforms) needed for hands-on AI education.
- **Teaching materials:** Educators report a **severe shortage of teaching materials** that contextualise AI for healthcare applications, particularly at the VET level where materials need to be accessible and practical.
- **Interdisciplinary collaboration:** While recognised as essential, cross-departmental **collaboration between healthcare and ICT faculties remains difficult due to scheduling, organisational structures, and differing pedagogical cultures**.
- **Student preparedness:** Some educators noted that **students entering healthcare programmes often have limited digital literacy**, requiring foundational digital skills training before AI topics can be meaningfully introduced.

5.5 Key Challenges Identified

The most frequently cited challenges to AI education in healthcare programmes, based on thematic analysis of all open-ended responses, are:

- Lack of teacher training and professional development in AI (cited by 76.5% of respondents).
- Absence of contextualised teaching materials for AI in healthcare (67.6%).
- Rapid evolution of AI technologies making curriculum development difficult (58.8%).
- Insufficient time in already dense curricula to add AI content (52.9%).
- Limited institutional support and strategic vision for AI integration (47.1%).
- Lack of computational infrastructure and tools (41.2%).
- Difficulty establishing sustainable industry partnerships (35.3%).
- Regulatory and ethical uncertainties around AI in healthcare (29.4%).

5.6 Requested New Topics and Areas

When asked about topics they would like to see integrated into their programmes, respondents identified the following priority areas:

- Practical AI tools for healthcare professionals (hands-on workshops with real applications).
- AI-assisted diagnostics and clinical decision support systems.
- Ethical AI frameworks specifically designed for healthcare contexts.
- Data literacy and data management for healthcare AI applications.

- AI in dementia care: cognitive assessment tools, monitoring systems, assistive technologies.
- Machine learning basics tailored for non-technical healthcare audiences.
- Interdisciplinary project-based learning combining healthcare and ICT students.
- Sustainability and green AI considerations in healthcare technology.

6. Conclusions and Recommendations

6.1 Summary of Key Findings

This benchmarking analysis of AI skills development in European healthcare and ICT education reveals a landscape characterised by **significant gaps and untapped potential**. The key findings can be summarised as follows:

1. The European educational landscape, based on the data from consortium partners, is **largely unprepared for AI integration in healthcare education**. With 82% of programmes lacking meaningful AI content and 64.7% of educators reporting low confidence in teaching AI topics, there is a systemic gap between the growing importance of AI in healthcare and the educational sector's capacity to prepare professionals for this reality.

2. Dementia care and AI remain largely disconnected in current curricula. Despite the ageing European population and the significant potential of AI technologies to improve dementia care outcomes, 70.6% of programmes have no dementia-specific content, and virtually none address AI applications in dementia care.

3. VET healthcare programmes represent the largest and most underserved segment. As the primary pathway for training practical healthcare professionals, VET healthcare programmes (44.1% of our sample) show the lowest AI integration rates, lowest teacher confidence, and fewest innovation projects.

4. Innovation and entrepreneurship skills are notably absent. With 82.4% of programmes lacking novel development projects and 73.5% providing no entrepreneurial exposure, the educational sector is not cultivating the innovation capacity needed to drive AI adoption in healthcare.

5. Sustainability and ethical AI awareness remain low. The mean sustainability score of 2.2 out of 5 and limited coverage of AI ethics indicate that critical societal considerations are being overlooked in the rush (or delay) to integrate AI into education.

6.2 Recommendations

Based on the comprehensive analysis presented in this white paper, the following recommendations are made for the DETECT 2.0 project and for European AI education in healthcare more broadly:

6.2.1 Curriculum Development

- **Develop modular AI curriculum components:** Create flexible, modular AI learning units that can be integrated into existing healthcare programmes at different levels (awareness, foundational, intermediate, advanced) without requiring a complete curriculum overhaul.

- **Design dementia-specific AI modules:** Develop targeted educational content addressing AI applications in dementia care, including cognitive assessment tools, smart monitoring systems, predictive analytics, and assistive technologies.
- **Create differentiated pathways:** Develop separate but complementary curriculum tracks for VET and HEI programmes, recognising their different structures, durations, and learning objectives. **A well-structured module design can make possible sharing educational resources**.
- **Integrate competence-based assessment:** Move towards competence-based assessment frameworks that evaluate students' ability to apply AI knowledge in healthcare contexts, rather than relying solely on theoretical examinations.

6.2.2 Teacher Professional Development

- **Establish structured training programmes:** Create comprehensive professional development programmes for healthcare educators, covering AI fundamentals, pedagogical approaches for AI education, and healthcare-specific AI applications.
- **Build communities of practice:** Facilitate cross-institutional communities of practice where educators can share experiences, resources, and best practices for AI education in healthcare.
- **Provide ongoing support:** Recognise that AI is a rapidly evolving field and establish mechanisms for continuous updating of teacher knowledge, including regular workshops, webinars, and resource repositories.

6.2.3 Innovation and Collaboration

- **Foster interdisciplinary collaboration:** Create structured opportunities for healthcare and ICT students and educators to collaborate on AI projects, leveraging complementary expertise.
- **Strengthen industry partnerships:** Develop sustainable partnership models with healthcare technology companies, hospitals, and care facilities to provide students with exposure to real-world AI applications.
- **Promote innovation pedagogy:** Integrate innovation and entrepreneurship elements into healthcare curricula, including design thinking, prototyping, and project-based learning approaches.

6.2.4 Sustainability and Ethics

- **Embed ethical AI throughout:** Integrate ethical AI considerations as a cross-cutting theme across all AI-related educational content, rather than treating it as a standalone topic.
- **Address sustainability:** Include green AI, energy-efficient computing, and sustainable technology practices as integral components of AI education.

- **Develop healthcare-specific ethical frameworks:** Create ethical decision-making frameworks tailored to AI applications in healthcare and dementia care contexts.

6.2.5 Cross-Border Collaboration

- **Leverage consortium diversity:** Use the multi-country, multi-sector nature of the DETECT 2.0 consortium to develop educational resources that reflect diverse European perspectives and contexts.
- **Establish joint learning activities:** Create cross-border collaborative learning activities (virtual exchanges, joint projects, shared courses) that expose students to different healthcare and educational systems.
- **Share and scale best practices:** Document and disseminate successful practices and lessons learned across the consortium and beyond, contributing to the broader European agenda for AI skills in healthcare.

These recommendations provide a strategic framework for the subsequent tasks within WP4 (T4.2 Gap Analysis, T4.3 Curricula Insights, T4.4 Educational Material Development) and for the broader DETECT 2.0 project objectives.

The evidence presented in this white paper confirms both the urgency and the opportunity for systematic intervention to strengthen AI skills development in European healthcare education.

7. Annexes

Annex A: Survey Respondent Summary

The table below summarises the 34 survey respondents by institution, programme, and field of education.

Institution	Field	Type	Programmes Represented
Tredu (Finland)	Healthcare / ICT	VET	Practical Nurse, ICT Technician, Social and Health Care
Curio (Finland)	Healthcare / ICT	VET	Practical Nurse, Data Processing, Social Services
LAB University (Finland)	Healthcare / ICT	HEI	Nursing, Physiotherapy, Information Technology
UPV (Spain)	ICT	HEI	Computer Engineering, Data Science, AI Applications

Annex B: Survey Instrument Overview

The Windows Forms survey "Developing AI skills in healthcare education" comprised 38 questions organised as follows: Questions 1–8 captured respondent and programme demographics. Questions 9–14 assessed current AI integration levels and topics covered. Questions 15–18 focused on dementia-specific content and technology. Questions 19–24 evaluated teacher confidence, barriers, and professional development needs. Questions 25–30 explored innovation, entrepreneurship, and project-based learning. Questions 31–34 assessed sustainability, ethics, and responsible AI awareness. Questions 35–38 addressed digital competence frameworks, collaboration models, and future needs.

Annex C: Glossary of Terms

- **AI (Artificial Intelligence):** The simulation of human intelligence processes by computer systems, including learning, reasoning, and self-correction.
- **VET:** Vocational Education and Training, typically at EQF levels 3–5.
- **HEI:** Higher Education Institution, typically offering programmes at EQF levels 6–8.
- **EQF:** European Qualifications Framework, an 8-level reference framework for comparing qualifications across EU countries.
- **DigComp:** The European Digital Competence Framework for Citizens.
- **DigCompEdu:** The European Framework for the Digital Competence of Educators.
- **NLP:** Natural Language Processing, a branch of AI concerned with interactions between computers and human language.

- **DETECT 2.0:** Deep Tech Competence Enhancement for Digital Transition in Dementia Care – the Erasmus+ project under which this analysis was conducted.